MODULAR STORAGE RACK

CLAIMS

I claim:

1. A modular storage rack comprising:

a frame defining at least one storage bay having a depth sufficient to accommodate a plurality of separate storage units in separate horizontally spaced sections of the storage bay, the frame comprising cross beams between the ends of adjacent sections of the storage bay;

a plurality of modular carriage units, each extending substantially for the length of a storage bay section, each carriage unit including an endless loop oval track section with spaced, interconnected wheeled carrier members being connected in an endless loop and mounted for movement around the track section, each carriage unit extending into proximity to the cross beams at the ends of the storage bay sections;

mounting brackets interconnecting the ends of the track sections with adjacent cross beams so as to suspend the carriage units between the beams on opposite ends of the storage bay sections; and

a transfer assembly mounted in the frame between adjacent ends of adjacent carriage units, the transfer assembly comprising cylindrical members mounted for rotation about a transverse axis and being positioned with an upper side of the cylinder members being substantially at the same level as the upper side of the carriage units, such that the rollers maintain storage units at a substantially level plane as they are transferred from one storage unit to the next adjacent storage unit.

2. A modular storage rack as in claim 1 wherein the transfer assembly includes a transverse support member that extends over a cross beam, with the cylindrical members being rotatably mounted in the support member, the support member being mounted at ends thereof to opposing ends of adjacent carriage units.

3. A modular storage rack as in claim 2 wherein the transverse support member comprises an upwardly facing channel member, the channel member extending across the storage bay and having brackets that extend transversely from the channel, the brackets being releasably fastened to the ends of adjacent track sections to secure the transfer assembly to the track section.

4. A modular storage rack as in claim 3 wherein the cylindrical members are wheels rotatably mounted on axles mounted in the channel member.

5. A modular storage rack as in claim 1 wherein the transfer assembly includes cylindrical members that are mounted in close proximity to the adjacent carriage units, such that storage units are maintained at the same level when they travel from the track section to the next track section over the transfer unit.

6. A modular storage rack as in claim 5 wherein the transfer assembly includes cylindrical members that are positioned about one-eighth inch away from track sections on adjacent sides of the transfer assembly .

7. A modular storage rack as in claim 1 wherein the transfer assembly includes at least three longitudinally spaced cylindrical roller members positioned between the ends of adjacent track sections, the cylindrical members being positioned to engage storage units and modulate the speed of the storage units as they are transferred from track section to track section in the storage bay.

8. A modular storage rack as in claim 1 wherein the carriage units are supported by saddle members mounted on the cross beams, the saddle members engaging and supporting ends of the track sections, the track sections being releasably fastened to the saddle members.

9. A modular storage rack as in claim 1 wherein the carriage units are attached to the cross beams by brackets mounted on the track sections, the brackets resting on the cross beams and being releasably fastened to the cross beams, a bracket at one end of a track section being welded to the track section, a bracket at an opposite end of the track section being bolted to the track section through a longitudinal slot in the bracket that permits longitudinal position adjustment of the track section with regard to the cross beams.

10. A modular storage rack as in claim 1 wherein the rack includes a stop plate at an end of the storage bay to prevent storage units from falling off the end of the bay, the storage units being liftable over the stop plate to remove the storage units from the bay, the storage rack including an upwardly ramped plate adjacent an inner side of the stop plate that engages a storage unit and slows it down before it hits the stop plate as the storage unit slides upwardly on the ramped plate.

11. A modular storage rack as in claim 1 wherein the carriage members include plate members having horizontal storage unit support surfaces, the plate members being downwardly inclined at opposite sides of the support surfaces so as to provide close clearance between the plate members and the transfer assembly when the plate members move around arcuate sections of the track at the ends thereof.